Rev 2
May 4, 2026
Replaces Rev 1, July 2025

Excess Flow Check Valves

A-144, A-146 Installation, Operation, and Maintenance Instructions (IOM)

CAUTION: IMPORTANT SAFEGUARDS Midland valves are used in connection with a variety of products, many of which are hazardous materials and could cause serious injury or damage. Always use extreme caution and proper equipment when involved with hazardous materials. This valve should only be handled by qualified personnel. Read these instructions carefully before proceeding.

SAVE THESE INSTRUCTIONS!

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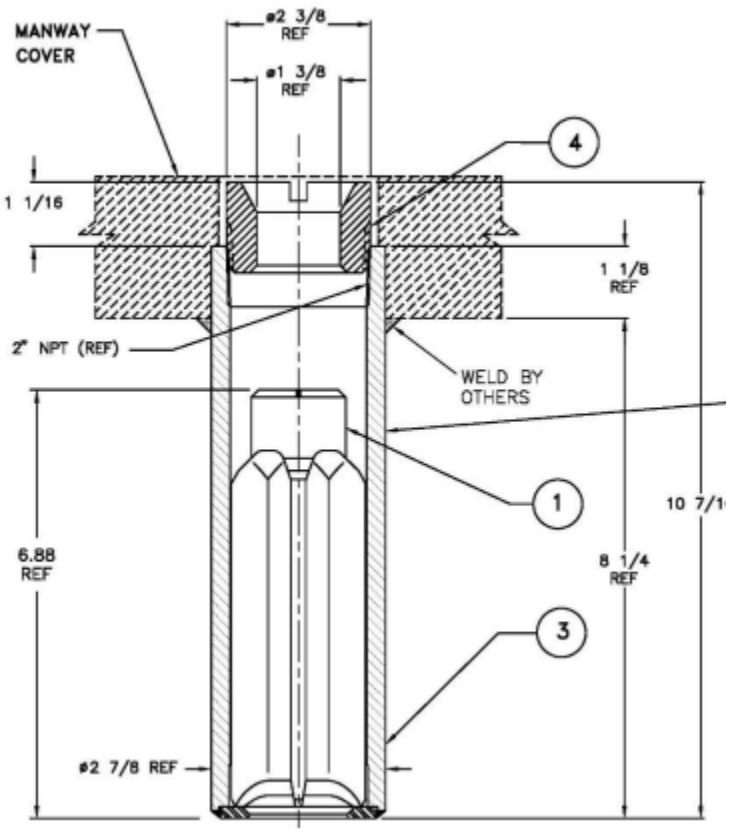

Item	Qty	Part	A-144		A-146		A-146-MO	
			Material	**Part No.**	**Material**	**Part No.**	**Material**	**Part No.**
1	1	Float	Ductile Iron	144-1-DI	Stainless Steel	146-1-SS	CF8M Stainless Steel	146-1-MO
3	1	Body	Carbon Steel	144-30-CS	Stainless Steel	146-30-SS	316 Stainless Steel	146-30-MO
4	1	Plug	Carbon Steel	134-5-CS	Stainless Steel	136-5-SS	316 Stainless Steel	136-5-MO

Function

It should be fully understood by all users of the restricted usefulness and purpose of excess flow check valves (abbreviated as EFCV). They can be relied upon to close only when the outward flow through the valve exceeds a predetermined amount of product.

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WARNING: Valve Misuse

EFCV valves are not to be used to protect against product loss during loading or unloading in the event of a line rupture.

Valves designed for line rupture protection are available. These valves provide manual, remote, and thermally activated shut off capability. All operating personnel should be alerted to this limitation of EFCV. In railroad tank car operation, EFCV serve only to protect the tank in the event the exterior valves are compromised.

Operation

1. As stated in the preceding paragraph, the EFCV has a flow rated capacity (subject to a variation or tolerance due to many factors). Most EFCV are equipped with a bypass, so that product will still flow through the valve when it has checked. The bypass is designed into the valve to permit pressure to equalize above and below the float when the valve downstream is closed off, thus enabling the float of the EFCV to unseat. Therefore, it is never safe to remove a valve directly above an EFCV, unless some flow of discharging product can be safely handled.

2. In a derailment accident, where tank cars are rolled over, the gravity actuated float in the EFVC will probably close below the rated capacity of the EFCV because the flow rate capacity is established when the valve is vertical and flow is upward.

Installation

NOTE: Conform to all regulations and your company's installation instructions. It is not the intention of this pamphlet to conflict with or supersede these requirements.

1. If the valve has been disassembled during the installation procedure, it is critical that the float be put back into the valve body in the correct orientation. For our 2" and 3" EFCV, the top of the float is flat across, with a small (about 1/8" x 45°) chamfer on the O.D. to mate with the valve's seat.

2. Be sure the float will slide freely up and down in the valve body. If the float had been taken out of the valve, inspect it to see that there are no burrs, nicks or gouges on the exterior guiding surfaces that could restrict the free movement of the float.

3. When welding the valve into its mounting, be careful not to get weld spatter on the inside of the valve body. Also, do not permit the valve body to become distorted when welding it in place.

4. If the valve has a removable seat, the valve seat should be tightened down so that it does not become disengaged in transit. Tighten the seat down securely. Midland has a wrench available to tighten down the seat.

Maintenance

Disassembly

1. Remove the plug from the body. The Midland T-312-CS wrench was designed to assist with the installation and removal of the plug.
2. Remove the float.
3. Body inspection
    a. Clean the interior of the body and
    b. Clean the threads.
    c. Check the 2” NPT body threads.
        i. Ensure the threads are full and not worn or damaged.
        ii. Check with a 2” NPT Gauge
3. Plug
    a. Clean the threads
    b. Visually check the threads to ensure they a full and not corroded.
    c. Inspect the threads with a 2” NPT ring gauge.

If the coupling does not meet the above criteria, replace it with new.

4. Float

    a. The float should move freely in the body.

        1. If there are rough edges restricting the free movement, the edges may be buffed. If they are still rough,

        2. Weigh the float. The float should weigh 2.80 to 3.32 lbs.

        If the float does not meet the above criteria, replace it with new.

Assembly

1. Lubricate the threads of the body with PFPE (perfluoropolyether) grease (examples include, but are not limited to: Krytox GLP204, Fluorolube GR-290).
2. Lubricate the threads of the plug with PFPE (perfluoropolyether) grease (examples include, but are not limited to: Krytox GLP204, Fluorolube GR-290).
    1. For Carbon steel model move to step 3.
    2. For Stainless Steel models, in addition to the grease, add a minimum of 2 wraps of Teflon tape to the plug.
3. Place the float into the body with the fins down, as shown below.

b.

4. Screw the plug into the body by hand.

5. Tighten the plug, tool tight. The Midland T-312-CS wrench may be used.

6. Assembly complete.

NOTICES AND WARRANTY

Midland Excess Flow Check Valves are used in a variety of products, many of which are hazardous materials. The acceptance and transportation of the products are regulated by the DOT and AAR in the U.S.A., and in Canada by the CTC and Transport Canada, as well as other governmental bodies, particularly when used in stationary applications. All personnel should be familiar with and follow these regulations. Nothing in this pamphlet is intended to conflict with or supersede these regulations.

Obtaining Product Drawings

Assembly drawings of Midland Excess Flow Check Valves are available at no charge and will be mailed upon request. Address any questions concerning valve maintenance or usage to the Engineering Dept., Midland Manufacturing Corp. The information contained herein is thought to be reliable. It was gathered from knowledgeable sources, but Midland Manufacturing Corp. makes no representations or guarantees about its accuracy or completeness and assumes no liability for this information.

Warranty

Midland warrants the products of its own manufacture to be free of defects in material and workmanship, for a period of 1 year from the date of the invoice. Furnished materials and accessories purchased from other manufacturers are warranted only by and to the extent of those manufacturers' warranties, if any.

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